REGISTRATION FORM

Last Name_____

First Name_____

Date of Birth_____

Place of Birth _____

Company_____

Address_____

City_____

State_____ Zip Code_____

Country_____

Phone_____

Fax:_____

E-mail:_____

Require Handicap Services?_____

Registration fee: **$195**

Amount Remitted: $_____

Make checks payable to:

NIST/CTAP

(Checks accepted from U.S. banks only)

Method of payment:

☐ Check _____

☐ *Purchase Order #_____

☐ *Training Form _____

☐ Visa ☐ MC ☐ AMEX ☐ Discover

Card #_____

Expiration date:_____

_____
Signature (required for all charges)

Request for cancellation and refund must be received, in writing, by
July 26, 2004.

The information provided in this registration form will be used for the following purposes: To process your payment, to create a conference name badge, to publish a participants list for this conference, to compile mailing lists for future conferences, and to run background checks of each visitor attending a DoC sponsored event at our facility.

☐ Please check here if you **do not** want your information published in the participant's list or conference mailing list.

*Enclose a copy or provide one on site at registration; faxed copy acceptable.

CONTACT INFORMATION

General Conference inquiries:

Wendy McBride
Conference Program Manager
NIST, Director's Office
325 Broadway, Div. 104
Boulder, CO 80305 USA

Phone: 303-497-4500
**Fax: 303-497-5208**
wmcbride@boulder.nist.gov

For specific program content information only, contact:

Kendall Waters
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NIST – Materials Reliability Division
325 Broadway, Div. 853
Boulder, CO 80305 USA

Phone: 303-497-4587
Fax: 303-497-5030
krwaters@boulder.nist.gov

www.boulder.nist.gov/div853/ctap/index.htm

Inaugural NIST Workshop on Computational Tools for Modeling Acoustic Propagation in Real-World Materials (CTAP)

CTAP 2004

$$\mathcal{L}(t) * p(z,t)$$

$\alpha(\omega)$ $k(\omega)$ $\mathcal{L}_\alpha(t)$ $\mathcal{L}_k(t)$
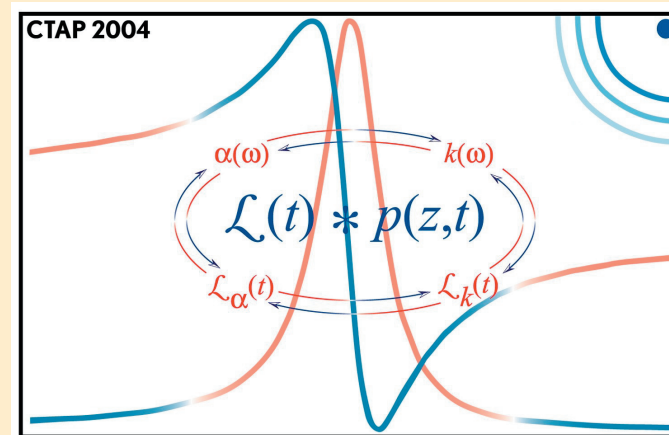
August 9-10, 2004

NIST - Boulder Labs
325 Broadway
Boulder, Colorado

NIST

National Institute of Standards and Technology
Technology Administration, U. S. Department of Commerce

Course Description

Many real-world materials are both attenuating and dispersive, with the properties underlying this behavior linked by the principle of causality. In the various branches of acoustics, including geophysics, SONAR, medical ultrasound, and non-destructive evaluation, similar models are often used in describing materials as propagation media. Incorporation of dispersion into time-domain models requires retention of the history of the acoustic pressure field. Consequently, time-domain modeling of acoustic propagation in such materials is both computationally and memory intensive. High-performance computing can address both of these computational issues. This workshop focuses on the computational tools necessary to model acoustic propagation in attenuating and dispersive materials.

Topics to be addressed

• Common aspects of acoustic propagation
  in various environments
• Physical and mathematical models
• Time-domain modeling techniques
• High-performance computing

Audience

The workshop is designed to bring together scientists, engineers, and mathematicians who are interested in the development of computational tools for modeling acoustic propagation. This includes propagation in materials that are of interest to the diverse branches of acoustics, including geophysics, SONAR, medical ultrasound, and nondestructive evaluation.

Workshop Format

• Invited review talks
• Limited number of contributed papers
• Discussion period following each talk
• Breakout sessions to focus on specific
  aspects of physical models and
  computational mathematics of acoustic
  propagation
• Session to establish a working group and
  prioritize important computational needs

Featured speakers

• David H. Marlin
   (U.S. Army Research Laboratory)
• Guy V. Norton
   (U.S. Naval Research Laboratory)
• Matthew R. Rielly
   (Philips Ultrasound)
• Thomas L. Szabo
   (Boston University)

Workshop Issues and Topics

Physical and mathematical aspects of acoustic propagation:
• Time-causal wave equation
• Kramers-Krönig dispersion relations
• Linear and non-linear propagation

Computational mathematical techniques:
• Finite-difference time-domain methods
• Causal boundary conditions
• Efficient convolution techniques

High performance computing methods:
• Parallel computation
• Single and distributed memory models
• Message Passing Interface

Lodging Information

For hotel reservations, please contact:

Best Western Boulder Inn
770 28th Street
Boulder, Colorado 80303
Phone: 303-449-3800,
            1-800-233-8469

Room rate: **$93** for one or two queen beds (includes deluxe continental breakfast).

Please mention the "NIST Computational Tools Workshop" when making reservations.

Registration Information

Check-in will be held on Monday, **August 9, 2004,** from 7:30 – 8:00 a.m. at the NIST Laboratories, lobby area.

Course registration fee: **$195**

Fee includes lecture materials, continental breakfasts, lunches, and daily refreshments.

Requests for cancellation and refund must be received in writing by **July 26, 2004.**

Three ways to register:
1. Complete the registration form and mail it along with your registration fee to:

NIST/Finance Division
100 Bureau Drive, Stop 3734
Gaithersburg, MD 20899-3734 USA

2. Fax the completed form, along with proof of payment, to: 303-497-5208

3. Or, register on-line at:
           https://rproxy.nist.gov/CRS
           (url address is case sensitive)

> **REGISTRATION DEADLINE**
> International Registrants: **July 26, 2004**
> Domestic Registrants: **August 2, 2004**

NOTE: Date and place of birth (city, state, country) are required in order for any non-Depatment of Commerce personnel to attend any event on the DoC campus. If the requested information is not provided for security to accomplish background checks, access to the site will be denied.

Please e-mail this information to Wendy McBride at: wmcbride@boulder.nist.gov